

CLAIMS

We Claim:

- ✓1. A reactive personnel protection system of the type in which at least one air bag is inflated responsive to detection of a projectile prior to contact between said projectile and a person, said system comprising:
 - a radar-based projectile detection system;
 - at least one rapidly deployable air bag; and
 - a gas-generating system for rapid deployment of said air bag in response to detection of the approach of said projectile in proximity to said person by said detection system.
 2. The system of Claim 1 wherein said radar based projectile detection system operates at a frequency of 8-20 Ghz.
 3. The system of Claim 1 wherein said radar based projectile detection system operates at a frequency of 10.5 Ghz.
 4. The system of Claim 1 wherein said rapidly deployable air bag is interposed between said projectile and said person upon deployment.
 5. The system of Claim 1 wherein said rapidly deployable air bag is deployed across an opening into a room located between said

1 person and said object.

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4 6. The system of Claim 1 wherein said rapidly deployable air bag
5 is constructed from an ultra-high molecular weight polyethylene
material.

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7 7. The system of Claim 1 wherein said rapidly deployable air bag
8 is constructed from SPECTRA® material.

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10 8. The system of Claim 1 wherein said rapidly deployable air bag
11 is constructed from KEVLAR® material.

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13 9. The system of Claim 1 wherein said radar based projectile
14 detection system has anti-jamming electronics.

1 10. A reactive personnel protection system of the type in which at
2 least one air bag is inflated responsive to detection of a
3 concussive shock wave prior to arrival of said shock wave at the
4 location of a person, said system comprising:

5 a shock wave detection system;

6 at least one rapidly deployable air bag; and

7 a gas-generating system for rapid deployment of said air bag
8 in response to detection of the movement of said shock
9 wave toward said location of said person by said
10 detection system.

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12 11. The system of Claim 10 wherein said rapidly deployable air bag
13 is interposed between said shock wave and said person upon
14 deployment.

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16 12. The system of Claim 10 wherein said rapidly deployable air bag
17 is deployed across an opening into a room located between said
18 person and said shock wave.

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20 13. The system of Claim 10 wherein said rapidly deployable air bag
21 is constructed from an ultra-high molecular weight polyethylene
22 material.

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24 14. The system of Claim 10 wherein said rapidly deployable air bag
25 is constructed from SPECTRA® material.

1 15. The system of Claim 10 wherein said rapidly deployable air bag
2 is constructed from KEVLAR® material.

3 16. The system of Claim 10 wherein said shock wave detection
4 system has anti-jamming electronics.

1 17. A method to reactively protect personnel from the rapid
2 approach of an object by deployment of an air bag prior to the
3 arrival of the object at the location of said personnel, comprising
4 the steps of:

5 detecting the approach of said object;

6 discriminating the presence of said object with respect to the
7 presence of electronic noise;

8 activation of a gas-generation system in response to
9 discrimination of the presence of said object; and

10 deployment of an air bag between said object and said
11 personnel responsive to said activation of said gas-
12 generation system.

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14 18. The method of Claim 17, wherein said detecting step is
15 accomplished using a radar-based projectile detection system and
16 wherein said object is a ballistic projectile.

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18 19. The method of Claim 18, wherein said radar-based projectile
19 detection system operates at a frequency of 8-20 Ghz.

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21 20. The method of Claim 18, wherein said radar-based projectile
22 detection system operates at a frequency of 10.5 Ghz.

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24 21. The method of Claim 17, wherein said air bag deployment is
25 accomplished across an opening into a room located between said

1 personnel and said object.
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4 22. The method of Claim 17, wherein said object is a concussive
5 shock wave.

6 23. The method of Claim 22, wherein said concussive shock wave is
7 generated by an explosion.

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9 24. The method of Claim 17, wherein said detecting step is
10 accomplished using blast gauges and wherein said object is a
1 concussive shock wave.

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